



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,937	08/25/2003	Denis Couillard		8238
7590	04/20/2004		EXAMINER	ZEC, FILIP
Mr. Denis Couillard 71 A St. Antoine, QC G6V 5Y5 CANADA			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/645,937	COUILLARD, DENIS
	Examiner Filip Zec	Art Unit 3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 August 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 3 and 5 recite the limitation "the fluid" in line 1. There is insufficient antecedent basis for this limitation in the claim.
4. Claims 1-8 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure used to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

5. An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,758,514 to Genung et al, in view of U.S. Patent 4,753,285 to Rawlings. Genung discloses applicant's basic inventive concept, a geothermal heating and/or cooling system including a reservoir vessel for holding a supply of heat transfer fluid in a liquid phase (FIG. 8b), an automatically adjusting heating expansion valve (60) controlled by a sensor (S9) that is preferably located so as to detect the temperature or pressure of heat transfer fluid flowing from the subterranean heat exchanger to a gas compressor, substantially as claimed with the exception of having an air purging mechanism having an adapter and a pump. Rawlings shows this feature to be old in the geothermal art (19, FIG. 2; col 4, lines 6-18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Rawlings to modify the system of Genung, by adding an air eliminator in order to improve the efficiency of the system. By shunting any trapped air directly from the supply header to the return header, the problems associated with air bubbles in one of the parallel branch

conduits is eliminated. Balanced against the need to by-pass air is the desire to optimize the efficiency of the overall heat pump system. If the by-pass conduit is too short or if the inside diameter is too large, too much fluid by-passes the branch conduit array with a resulting loss of heat exchange. If the by-pass conduit is too long or if the inside diameter is too small, too much air enters the branch conduit array.

8. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,758,514 to Genung et al, in view of U.S. Patent 4,753,285 to Rawlings as applied to claim 1 above, and further in view of U.S. Patents 5,803,161 and 5,515,679 to Wahle et al and Shulman, respectively. Genung et al, in view of Rawlings discloses applicant's basic inventive concept, a geothermal heating and/or cooling system including a reservoir vessel for holding a supply of heat transfer fluid in a liquid phase, an automatically adjusting heating expansion valve controlled by a sensor that is preferably located so as to detect the temperature or pressure of heat transfer fluid flowing from the subterranean heat exchanger to a gas compressor and having an air purging mechanism with an adapter and a pump, substantially as claimed with the exception of specifically stating the use of a water methanol solution as the refrigerant and the piping sizing. Wahle (col 1, lines 40-42) and Shulman (col 6, lines 9-12) show these features to be old in the geothermal art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Wahle and Shulman to modify the system of Genung et al, in view of Rawlings, by using the water methanol solution as the refrigerant and having the upper section of its tank larger in diameter in order to decrease the flow of refrigerant while increasing the ability to separate the vapor from the liquid.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 4,106,555 to Quintal, Yvan.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is (703) 306-3446. The examiner can normally be reached on Monday through Friday, with the exception of every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Filip Zec
Examiner

Art Unit 3744


WILLIAM DOERRLER
PATENT EXAMINER
GROUP 3400

FZ

